



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/806,350

03/23/2004

Hiroshi Mizuhashi

OKI.647

3991

20987 7590 06/06/2007  
VOLENTINE & WHITT PLLC  
ONE FREEDOM SQUARE  
11951 FREEDOM DRIVE SUITE 1260  
RESTON, VA 20190

EXAMINER

PHAN, TRONG Q

ART UNIT

PAPER NUMBER

2827

MAIL DATE

DELIVERY MODE

06/06/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/806,350

Applicant(s)

MIZUHASHI, HIROSHI

Examiner

TRONG PHAN

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte, Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☒ Claim(s) 1-18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: PY1\_2D[0:7], PY3\_4D[0:3], PY5\_6D[0:3] and PY7\_8D[0:3] in Figs. 1 and 5; TGR(L), k and  $\ell$  in Fig. 4; k and  $\ell$  in Fig. 7. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

2. The disclosure is objected to because of the following informalities:

#### **Regarding Fig. 3 of the present invention:**

It is not understood how "The V<sub>pp</sub> level has a boosted voltage for preventing a voltage drop caused by a threshold voltage of the transistors" (last line of page 6) since there are so many transistors in Fig. 3 and the specification does not define any specific

transistor having a voltage drop caused by a threshold voltage of the transistors to be prevented by the  $V_{pp}$  level has a boosted voltage and how a boosted voltage is able to prevent a voltage drop caused by a threshold voltage of the transistors.

It is not understood how “the another sense amplifier 301 in another memory cell block 19 can be **connected** to a bit line pair BL[j] and BLb[j] in response to the “H” level of the block selecting signal YBSEL[l] and the column selecting signal Y[j]” as described in lines 3-5, page 9 of the specification. Because, first of all, how the block selecting signal YBSEL[l] is incorporated with the column selecting signal Y(j) not the column selecting signal Y(l) and, secondly, as defined in lines 6-14, page 8 of the specification, when the column selecting signal Y[j] is changed to the “H” level, the N-channel MOS transistors 222 and 223 are turned ON to connect sense amplifier 301 to the data buses DB and DBb and the sense amplifier 301 is **disconnected** from the bit line pair BL and BLb.

It is not understood how “the data latching operation in the sense amplifier 301, which is connected to the bit line pair BL[j] and BLb[j], which is selected by the column selecting signal Y[j] can be performed” as described in lines 11-15, page 9 of the specification. Because the specification defines in lines 6-14, page 9 of the specification that column selecting signal Y is used for selecting the corresponding ON transistors 222 and 223 of the data bus connection circuit 307 in order to connect the sense amplifier 301 to the data bus DB and DBb while the sense amplifier **disconnected** from the bit line pair BL and BLb.

**Regarding Fig. 4 of the present invention:**

It is not understood how gate signals TGR and TGL are collectively shown as elements TGR(L) since L is shown as a variable of TGR.

It is not understood what elements k and really and why they are enclosed within the signal waveforms YBSEL and TGR(L).

The operating relationship between the signal waveforms CLK, BURST, WDE, DBEQ and with respect to signal waveforms YBSEL, TGR(L), Y[i] and Y[j] are not clearly described in the specification.

It is not understood the relationship of the Y[i], SBL[i], SBLb[i], BL[i] and BLb[i] with respect to the time and why SBL[i], SBLb[i], BL[i] and BLb[i] are attached to the signal waveform Y[i].

It is not understood the relationship of the Y[j], SBL[j], SBLb[j], BL[j] and BLb[j] with respect to the time and why SBL[j], SBLb[j], BL[j] and BLb[j] are attached to the signal waveform Y[j].

**Regarding Fig. 6 of the present invention:**

It is not understood how the another sense amplifier 301 in another memory cell block 19 can be **connected** to a bit line pair BL[j] and BLb[j] in response to the "H" level of the block selecting signal YBSEL[l] and the column selecting signal Y[j] as described in lines 11-13, page 12 of the specification. Because, first of all, how the l th of block selecting signal YBSEL[l] is incorporated with the j th not the l th of column selecting signal Y[j] and, secondly, as defined in lines-14, page 8 of the specification, when the column selecting signal Y is changed to the "H" level, the N-channel MOS transistors

Art Unit: 2827

222 and 223 are turned ON to connect sense amplifier 301 to the data buses DB and DBb and the sense amplifier 301 is **disconnected** from the bit line pair BL and BLb.

It is not understood how the data latching operation in the sense amplifier 301, which is connected to the bit line pair BL[j] and BLb[j], is selected by the column selecting signal Y[j] as described in lines 19-22, page 12 of the specification. Because the specification defines in lines 6-14, page 9 that column selecting signal Y is used for selecting the corresponding ON transistors 222 and 223 of the data bus connection circuit 307 in order to connect the sense amplifier 301 to the data bus DB and DBb while the sense amplifier **disconnected** from the bit line pair BL and BLb.

**Regarding Fig. 7 of the present invention:**

It is not understood how gate signals TGR and TGL are collectively shown as elements TGR(L) since L is shown as a variable of TGR.

It is not understood what elements k and really and why they are enclosed within the signal waveforms YBSEL and TGR(L).

The signal waveform relationship between the signal waveforms CLK, BURST, WDE, DBEQ and with respect to signal waveforms XASEL, YBSELb, TGR(L), Y[i] and Y[j] are not clearly described in the specification.

It is not understood the relationship of the Y[i], SBL[i], SBLb[i], BL[i], BLb[i] and  $VDD - V_t$  with respect to the time and why SBL[i], SBLb[i], BL[i], BLb[i] and  $VDD - V_t$  are attached to the signal waveform Y[i].

It is not understood the relationship of the Y[j], SBL[j], SBLb[j], BL[j] and BLb[j] with respect to the time and why SBL[j], SBLb[j], BL[j] and BLb[j] are attached to the

signal waveform Y[j].

It is not understood why the voltage level of signal waveform TGR(L) is changing from VPP level, down to VDD level, further down to low level, up to high level, down to low level and up to high level during the time period the signal waveform is at high level.

The feature "the switching transistor is driven to be ON by a first voltage and then driven to be ON by a second voltage which is higher than the first voltage" recited in lines 9-10 of claim 1 is not described in the specification. Fig. 7 of the present invention only shows the signal waveform TGR(L) first starts at high level VPP then drops down to a lower level VDD.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1, 3-6, 8-10, 12-15 and 17-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, a data line and a first bit line are not readable on the respective Figs. 3 and 5 of the present invention since there are data lines DB and DBb and bit lines BL and BLb shown in Figs. 3 and 5; the step of connecting the data line to a second sense amplifier when the first bit line is connected to the first sense amplifier (last paragraph) is not seen to be described in the specification. The specification only describes the latching next data operation in another second sense amplifier 301, which is connected

to a bit line pair BL[j] and BLb[j], while the writing operation from the first sense amplifier 301 to the bit lines pair BL[i] and BLb[i] performed (see lines 4-8, page 9). The latching operation is performed only when the data line pair DB and DBb are disconnected (not connected) to sense amplifier 301. It is also noted that when the bit lines are connected to the sense amplifier 301 to start the latching operation, the data lines are disconnected from the sense amplifier 301 and the transfer gates 302/302 in all memory cell blocks in Fig. 3 of the present invention are all controlled by the same respective signals TGL, TGLb, TGR and TGRb and the transfer gates 607/608 in all memory cell blocks in Fig. 5 of the present invention are all controlled by the same respective signals TGL and TGR, therefore, the bit lines in all memory cells blocks in Figs. 3 and 5 of the present invention must be turned ON simultaneously at the same time while the data lines is disconnected from the sense amplifier and must be turned OFF simultaneously at the same time while the data lines is connected to the sense amplifier 301. Specifically, whenever the data line is selectively connected to any sense amplifier 301 in any memory cell blocks by column selecting signal Y, all the bit lines BL and BLb in all memory cell blocks must be consistently turned OFF. The data line can not be connected to a second sense amplifier when the bit line is connected to the first sense amplifier.

Claim 3, the data line and a second bit line are not readable on the respective Figs. 3 and 5 of the present invention since there are data lines DB and DBb and bit lines BL and BLb in the next second memory cell block shown in Figs. 3 and 5.

Claim 4, the second bit line are not readable on the respective Figs. 3 and 5



of the present invention since there are bit lines BL and BLb in the next second memory cell block shown in Figs. 3 and 5.

Claim 5, the first bit line are not readable on the respective Figs. 3 and 5 of the present invention since there are bit lines BL and BLb in the first memory cell block shown in Figs. 3 and 5.

Claim 8, a data line, a first bit line and a second bit line are not readable on the respective Figs. 3 and 5 of the present invention since there are data line pair DB and DBb, first bit lines BL and BLb and second bit lines BL and BLb in the next memory cell block shown in Figs. 3 and 5; all the recited steps of transferring are not seen to be described in the specification as well as in the drawings of the present invention; the step of transferring the second data from the second sense amplifier to a second bit line after the second sense amplifier is disconnected from the data line is not seen to be described in the specification as well as to be shown in the drawings of the present invention. The specification only describes the latching next data operation in another second sense amplifier 301, which is connected to a bit line pair BL[j] and BLb[j], while the writing operation from the first sense amplifier 301 to the bit lines pair BL[i] and BLb[i] performed (see lines 4-8, page 9). The latching operation is performed only when the data line pair DB and DBb are disconnected (not connected) to sense amplifier 301. It is also noted that when the bit lines are connected to the sense amplifier 301 to start the latching operation, the data lines are disconnected from the sense amplifier 301 and the transfer gates 302/302 in all memory cell blocks in Fig. 3 of the present invention are all controlled by the same respective signals TGL, TGLb, TGR and TGRb

and the transfer gates 607/608 in all memory cell blocks in Fig. 5 of the present invention are all controlled by the same respective signals TGL and TGR, therefore, the bit lines in all memory cells blocks in Figs. 3 and 5 of the present invention must be turned ON simultaneously at the same time while the data lines is disconnected from the sense amplifier and must be turned OFF simultaneously at the same time while the data lines is connected to the sense amplifier 301. Specifically, whenever the data line is selectively connected to any sense amplifier 301 in any memory cell blocks by column selecting signal Y, all the bit lines BL and BLb in all memory cell blocks must be consistently turned OFF. The second data from data line can not be transferred to a second sense amplifier when the first bit line is connected to the first sense amplifier.

Claim 9, the second bit line are not readable on the respective Figs. 3 and 5 of the present invention since there are bit lines BL and BLb in the next second memory cell block shown in Figs. 3 and 5.

Claim 10, the first bit line are not readable on the respective Figs. 3 and 5 of the present invention since there are bit lines BL and BLb shown in Figs. 3 and 5.

Claim 12, the first bit line are not readable on the respective Figs. 3 and 5 of the present invention since there are bit lines BL and BLb shown in Figs. 3 and 5; the feature "the switching transistor is driven by a first voltage and then driven by a second voltage which is higher than the first voltage" is not readable on the respective drawings of the present invention.

Claim 13, a data line and a first bit line are not readable on the respective Figs. 3 and 5 of the present invention since there are data lines DB and DBb and

bit lines BL and BLb shown in Figs. 3 and 5; no antecedent basis for "first data" (line 2) and "second data" (line 5); all the recited steps of transferring are not seen to be described in the specification as well as in the drawings of the present invention; the step of transferring the second data from the second sense amplifier to a second bit line after the second sense amplifier is disconnected from the data line is not seen to be described in the specification as well as to be shown in the drawings of the present invention.

Claim 14, the first bit line and the second bit line are not readable on the respective Figs. 3 and 5 of the present invention since there are bit lines BL and BLb shown in Figs. 3 and 5.

Claim 15, the first bit line are not readable on the respective Figs. 3 and 5 of the present invention since there are bit lines BL and BLb shown in Figs. 3 and 5.

Claim 17, the first bit line are not readable on the respective Figs. 3 and 5 of the present invention since there are bit lines BL and BLb shown in Figs. 3 and 5; the feature "the switching transistor is driven by a first voltage and then driven by a second voltage which is higher than the first voltage" is not seen to be described in the specification as well as to be shown in the drawings of the present invention.

Claim 18, a bit line is not readable on the respective Figs. 3 and 5 of the present invention since there are bit lines BL and BLb shown in Figs. 3 and 5; the feature "wherein data having a voltage drop caused by a threshold voltage of the switching transistor is transferred from the sense amplifier to the bit line by the switching transistor responsive to the first voltage" (lines 3-5) and the feature " wherein data which does not

have a voltage drop caused by a threshold voltage of the switching transistor is transferred from the sense amplifier to the bit line responsive to the second voltage” (lines 7-9) are not seen to be described in the specification as well as to be shown in the drawings of the present invention.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 3-4, 8-9, 12-14 and 17-18 are, insofar as understood, rejected under 35 U.S.C. 102(b) as being anticipated by Sakamoto, 6,445,632.

Sakamoto, 6,445,632, discloses in Fig. 2 a memory device comprising:

**Regarding claims 1, 4, 8-9, 12-14 and 17:**

bit lines BLO and ZBLO which are read on a first bit line;

data lines IOP which are read on a data line;

sense amplifier circuit SAU, in a first memory cell block 2u, which is read on the first sense amplifier;

sense amplifier circuit SAD in a first memory cell block 2u, which is read on the second sense amplifier;

bit line isolation circuit 3ua including a bit line isolation gate BGUa including transfer gate T2 formed of N channel MOS transistor (see lines 57-62, column 7), controlled by bit line isolation control signal  $\phi$ BIUa, which is read on the switching transistor;

as shown in Fig. 3, when bit line isolation control signal oBIUa attaining to the high level (a high voltage level) (see lines 20-21, column 14) (a first voltage), N channel MOS transistor is rendered conductive to be ON and still being driven to be ON by the downward slope voltage (a second voltage) lower than the high level until the voltage level is finally achieved at low level (OFF);

wherein:

when bit line isolation circuit 3ua is brought into non-conductive state (see lines 5-7, column 9), column selection signal CSL is driven into the active state so that latching data of sense amplifier circuit SAU is read (see lines 27-32, column 9) out to the data lines IOP which is read on the step of connecting a data line to a first sense amplifier when a first bit line is disconnected from the first sense amplifier;

when the data reading with respect to sense amplifier band 2u is completed (see lines 7-10, column 10), data of the memory cells connected to the corresponding bit lines are stored by sense amplifier circuit SAU (see lines 20-23, column 10) which is read on the step of connecting the first sense amplifier when the data line is disconnected from the first sense amplifier;

column selection signal CSL applied to column selection gates CGU and CGD may be different (see lines 32-34, column 8), therefore, data stored in second sense amplifier circuit SAD may be read out to data lines IOP at the same time as the first sense amplifier SAU is connected to the bit lines which is read on the step of connecting the data line to a second sense amplifier when the first bit line is connected to the first sense amplifier;

**Regarding claim 3:**

when the second sense amplifier circuit SAD is connecting to the second bit lines in the next adjacent memory cell block 2d to store data, the second sense amplifier SAD is disconnected from the data lines IOP;

**Regarding claim 18:**

each of NMOS transistors T2 in the bit line isolation circuit 3ua, which are read on the switching transistor, having an inherent threshold voltage as well known in the art; as shown in Fig. 3, bit line isolation control signal  $\phi\text{BIDa}$  having a high voltage level which is read on the first voltage and a low voltage level which is read on the second voltage;

since transistors T2 are N-channel MOS transistors, therefore, they are turned ON by the high voltage level (a first voltage) of the bit line isolation control signal  $\phi\text{BIDa}$ , data having a voltage drop caused by the inherent threshold voltage is transferred from the sense amplifier SAU to the bit lines by the driven to be ON NMOS transistors T2 as well known in the art;

since transistors T2 are N-channel MOS transistors, therefore, they are turned OFF by the low voltage level (a second voltage) of the bit line isolation control signal  $\phi\text{BIDa}$ , the data which does not have a voltage drop caused by the inherent threshold voltage is transferred from the sense amplifier SAU to the bit lines by the driven to be OFF NMOS transistors T2 as well known in the art.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 5-6, 10-11 and 15-16 are, insofar as understood, rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto, 6,445,632, in view of Kwon et al., 5,973,972.

Sakamoto, 6,445,632, discloses every features except the features as recited in claims 5-6, 10-11 and 15-16.

Kwon et al., 5,973,972, discloses in Fig. 1 the teaching of using transfer gates TG1 and TG2 each comprising a pair of complementary PMOS transistor and NMOS transistor being controlled by respective complementary control signals Y and /Y for connecting the bit lines BL and /BL of memory cell 10 to sense amplifier 60.

It would have been obvious under 35 USC 103(a) to one of ordinary skill in the art at the time of the invention was made to utilize transfer gates TG1 and TG2 in Fig. 1 of Kwon et al., 5,973,972, for the NMOS transistor T2 in Fig. 2 of Sakamoto, 6,445,631, for the purpose of connecting the bit lines BLO and ZBL) of memory cell MC to sense amplifier circuit SAU in Fig. 2 of Sakamoto, 6,445,631.

### ***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Response to Arguments***

10. Applicant's arguments filed on 3/13/07 have been fully considered but they are not persuasive because of the following reasons:

Elements PY1\_2D[0:7], PY3\_4D[0:3], PY5\_6D[0:3] and PY7\_8D[0:3] in Figs. 1 and 5; TGR(L), k and  $\ell$  in Fig.4; k and  $\ell$  in Fig. 7 are still not seen to be described in the specification.

The operations in Figs. 3-4 and 6-7 of the present invention are still not consistently with the corresponding descriptions in the specification as objected above.

Claims 1, 3-5, 6, 8-10, 13-15 and 17-18 are still not readable on the corresponding drawings of the present invention as rejected under 35 USC 112, second paragraph, as above.

The feature "the switching transistor is driven to be ON by a first voltage and then driven to be ON by a second voltage which is higher than the first voltage" recited in



lines 9-10 of claim 1 is not described in the specification. Fig. 7 of the present invention only shows the signal waveform TGR(L) first starts at high level VPP then drops down to a lower level VDD. Therefore, the rejection of claims 1, 3-4, 8-9, 12-14 and 17-18 are, insofar as understood, rejected under 35 U.S.C. 102(b) as being anticipated by Sakamoto, 6,445,632, and the rejection of claims 10-11 and 15-16 are, insofar as understood, rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto, 6,445,632, in view of Kwon et al., 5,973,972, are still considered to be proper as set forth above.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TRONG PHAN whose telephone number is (571) 272-1794. The examiner can normally be reached on M-F (8:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, AMIR ZARABIAN can be reached on (571)272-1852. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like

Art Unit: 2827

assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

*PhauBony*

TRONG PHAN  
PRIMARY EXAMINER